

**HAZARD CONTROL PLAN AND WORK AUTHORIZATION** Page 1 of \_\_\_\_

This form is from ESH-17-035

1. Describe the work to be performed (use continuation page if needed) or give procedure number, revision number, and title.

HCP-ESH-17-FlueEmissions, R0

Title: Measurement of Emissions from Combustion Equipment.

This hazard control plan ensures that all hazards associated with site specific stack testing are evaluated and mitigated prior to measuring flue gasses from combustion equipment within LANL.

2. Describe potential hazards associated with the work (use continuation page if needed).

Potential hazards associated with stack testing may include:

Lifting injuries: lifting equipment, probes, instruments.

Tight spaces: abrasions and bruises.

Elevated surfaces (tripping, falls, use of ladders): falls from ladders.

Falling equipment or parts: when working on roofs or on ladders, tools could be dropped.

Weather (lightning, sun exposure, high winds, wet conditions): possible outdoors work.

Electric shock: use of extension cords for powering equipment in wet conditions.

Elevated temperatures: hot surfaces and warm rooms.

Toxic/hazardous materials: flue gasses and combustion products.

Rad areas: some areas may be in rad controlled areas with radiation hazards.

Rotating equipment: mechanical rooms contain fans and other equipment.

3. For each hazard, list the likelihood and severity, and the resulting initial risk level (before any work controls are applied, as determined according to LIR300-00-01.0, section 7.2)

Lifting injuries: occasional / moderate = low.

Tight spaces: occasional / moderate = low.

Elevated surfaces: improbable / critical = low.

Falling equipment or parts: moderate / occasional = low.

Sun exposure: frequent / negligible = minimal.

Weather: occasional / moderate = low.

Electrical shock in wet conditions: catastrophic / remote = low

Elevated temperatures: occasional / critical = medium

Toxic/hazardous materials: improbable / moderate = minimal.

Rad areas: improbable / moderate = minimal.

Overall *initial* risk: ☐ Minimal ☐ Low ☒ Medium ☐ High

4. Applicable Laboratory, facility, or activity operational requirements directly related to the work:

☐ None ☒ List:

Work Permits required? ☒ No ☐ List:

LIR on noise and temp stresses

Elevated work surfaces.

5. Describe how the hazards listed above will be mitigated (e.g., safety equipment, administrative controls, etc.):

Lifting injuries: Use proper lifting techniques.

Tight spaces: wear long pants, gloves, hard hat, long sleeve shirt when exposed surfaces over 100 degrees F.

Elevated surfaces: ladder training.

Falling equipment or parts: wear hard hat if within 15 feet of base of ladders or scaffolding.

Sun exposure: If working outside, wear sunscreen.

Weather: Do not work outside if it is raining, obey 30-30 rule if lightning is present.

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6. Knowledge, skills, abilities, and training necessary to safely perform this work (check one or both):

☐

Group-level orientation (per ESH-17-032) and training to applicable procedure.

☒

Other → Describe:

Rad worker training.

Site-specific training.

7. Any wastes and/or residual materials? (check one) ☒ None ☐ List:

There could be possible waste from the breakdown and cleaning of stack testing equipment, disposed as normal trash.

8. Considering the administrative and engineering controls to be used, the *residual* risk level (as determined according to LIR300-00-01.0, section 7.3.3) is (check one):☐

Minimal

☒

Low

☐

Medium (requires approval by Division Director)

9. Emergency actions to take in event of control failures or abnormal operation (check one):

☐

None

☒

List:

Follow the facility's site-specific emergency procedure (briefings will be made available to the stack testing personnel).

After this form is approved, perform the work safely. Identify opportunities for improvements in safety and report these to the safety officer or group leader.

Preparer(s) signature(s)

Name(s) (print)

/Position

Date

[NOTE: Training to a procedure constitutes authorization.] **If this work is NOT described by a procedure:** I have reviewed the safety of this proposed work with the group safety officer and I commit to follow safe practices when performing this work.

Employee signature

Name (print)

Date

Additional employee signature (optional)

Name (print)

Date

Additional employee signature (optional)

Name (print)

Date

**Group leader or safety officer review.**

I have reviewed the proposed work with 1) the preparer(s) and 2) employees who will perform the work (if not described in a procedure) and I believe the hazards and safety concerns have been adequately addressed. The work as described above is hereby authorized. This authorization expires one year after the date below.

Group leader or safety officer signature

Name (print)

Date

This plan will be revised according to ESH-17-035. Group leader or safety officer: After completion, submit to ESH-17 Records Coord.

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**Hazard Control Plan continuation page. Give item number being continued.**

## 2. Hazards:

Noise: high noise levels in some equipment rooms.

## 3. Risks:

Rotating equipment: occasional / critical = medium.

Noise: probable / moderate = medium.

## 5. Mitigation:

Electrical shock in wet conditions: use extension cords with GFCI protection.

Elevated temperatures: Follow the two-person rule: a second person must be nearby and aware of the worker's location and condition. Do not remain in any room that is over 100 degrees for more than 15 minutes at a time; less for higher temperatures. Bring water to drink and drink frequently (use provided sources if in a controlled area).

For hot probes after removal from flue (up to 350 degrees), wear leather gloves and wait 5 minutes for parts to cool before leaving the area.

When done, cover the access hole with foil tape.

Toxic/hazardous materials: check for direction of air flow through open port, using a suitable powder or other method. If there is significant air flow out of the port, or if not sure of air flow direction, use high temperature foil tape (for very hot surfaces) or other materials to seal the probe around the port. Avoid breathing the flue gas and ventilate the area.

Rotating equipment: All equipment should be shielded and guarded. If exposed rotating equipment is present near the work area, do not perform the work in the area until the hazard is removed.

Noise: obey all postings for elevated noise levels. Hearing protection is highly recommended in areas where noise levels are over 82db.

Rad areas: obey all radiation warning signs. Rad Worker training is required.